

United States Government

Department of Energy

Oak Ridge Office

memorandum

DATE: May 11, 2007

REPLY TO

ATTN OF: SC-13:Persinger

SUBJECT: **REQUEST FOR APPROVAL OF EVALUATION REPORT OF THE PACIFIC NORTHWEST NATIONAL LABORATORY (PNNL), 325 BUILDING EXTENDED LIFE UPGRADES**

TO: George J. Malosh, Chief Operating Officer for the Office of Science, SC-3, HQ/GTN

The Capability Replacement Laboratory (CFU) Project at the Pacific Northwest National Laboratory (PNNL) consolidates mission-critical technical capabilities currently housed in multiple buildings throughout the Hanford 300 Area. The CFU Project will retain and extend the operational life of four 300-Area buildings to house some of the mission-critical capabilities and reduce the footprint of new construction on the PNNL Site. One of the 300-Area facilities retained is the Radiochemical Processing Laboratory (RPL), housed in the 325 Building. The RPL is a Hazard Category 2 nuclear facility currently operating under a Department of Energy (DOE)-Environmental Management (EM) approved safety basis.

The RPL will maintain four mission-critical capabilities:

- Shielded Operations
- Radiation Detection
- Materials Science and Technology
- Chemistry and Processing

To provide for the long-term capabilities (nominally 20 years), physical upgrades are planned that promote operational flexibility and the life extension of the RPL. These include seismic improvements, removal of several fume hoods, addition of several small modular hot cells and glove boxes, roof repairs, improved personnel access, and new Personnel Contamination Monitors. To ensure that DOE fully understood the risks associated with the physical upgrades and the acceptance of the existing safety basis, an evaluation of risks was conducted by PNNL. Changes to requirements, improvements to the existing safety basis via a safety design strategy and a scoping hazards analysis, updating of the Natural Phenomena Hazards assessment, completion of safety system assessments, a 2004-2 evaluation of the ventilation system, cost-benefit analysis and a major modification evaluation of the upgrades was performed. This information was summarized in a risk assessment provided to DOE. This information provided the basis to DOE on the scope of the upgrades that would be used for the Critical Decision 2 of the Capabilities Replacement Laboratory project. The scope of the upgrades was used to determine whether a major modification was applicable under 10 CFR 830.206 and the associated readiness reviews.

A DOE review team was formed to examine the adequacy of PNNL's risk assessment. Based upon the review, documented in the enclosed Evaluation Report, the team concludes that the modifications identified by PNNL are sufficient for the 20-year life extension and should not be considered a major modification as defined by 10 CFR 830.206.

The following recommendations are made associated with this review:

1. The Office of Science (SC) Approval Authority should direct PNNL to designate the hot cells and glove boxes as SS-Design Features and add these to their current Technical Safety Requirements when approval authority transfers from the Office of Environmental Management (EM) to SC.
2. PNNL conduct at a minimum, a contractor led/DOE approved Readiness Assessment based upon the current planned scope of activities. The degree of readiness activity will ensure DOE has a firm basis that the controls have been appropriately implemented.
3. PNNL shall resubmit the revised National Phenomena Hazards assessment to DOE within 10 working days of the designation of SC as the 325 Building approval authority that corrects the Exhaust Stack height and documents its non-compliance with PC-2 wind requirements.

I recommend your approval of the Evaluation Report. If you concur, please sign at the appropriate place on the Evaluation Report signature page and return the document to me.

If there are any questions regarding this report, please contact me at (865) 241-6588.



H. Randall Persinger, Team Leader
Safety Basis and Upgrades Review
Oak Ridge Office

Attachment

cc w/attachment:

Marcus E. Jones, SC-23.2, HQ/GTN

Johnny O. Moore, SC-10, ORO

Jeffrey L. Carlson, PNSO

Roger F. Christensen, PNSO

Julie K. Erickson, PNSO

Chad S. Henderson, PNSO

Russell N. Warren, PNSO

**The Department of Energy
Evaluation Report of the
Pacific Northwest National Laboratory
325 Building Extended Life Upgrades**

Revision 0



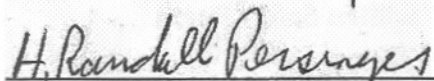
May 11,2007

Table of Content

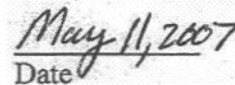
SIGNATURE PAGE.....	i
ACRONYMS.....	ii
EXECUTIVE SUMMARY.....	iii
1.0 REVIEW PROCESS.....	1
2.0 BASE INFORMATION	2
3.0 SAFETY DESIGN STRATEGY.....	2
4.0 SCOPING HAZARDS ANALYSIS AND CONTROL ALLOCATION	3
5.0 NATURAL PHENOMENA HAZARDS	4
6.0 SAFETY REQUIREMENTS REVIEW.....	5
7.0 SAFETY SYSTEM ASSESSMENT	6
8.0 2004-2 VENTILATION SYSTEM ASSESSMENT	7
9.0 FACILITY MODIFICATION AND UPGRADE DETERMINATION.....	8
10.0 COST BENEFIT ANALYSIS.....	8
11.0 RISK ASSESSMENT.....	9
12.0 ACTIONS/CONDITIONS OF APPROVAL.....	10
13.0 RECORDS.....	11
ATTACHMENTS	
Attachment A: DOE Logic Diagrams	A-1
Attachment B: DOE Review Comments for the Safety Design Strategy.....	B-1
Attachment C: DOE Review Comment for the Safety Basis Requirements Review.....	C-1
Attachment D: DOE Review Comment for the Scoping Hazards Analysis.....	D-1
Attachment E: DOE Review Comments for the System Assessments	E-1
Attachment F: DOE Review Comments for the Natural Phenomena Hazards Assessment Update	F-1
Attachment G: DOE Review Comments for the 2004-2 Ventilation System Evaluation	G-1
Attachment H: DOE Review Comments for the 325 Building Extended-Mission Risk Assessment	H-1

The Department of Energy
Evaluation Report of the
Pacific Northwest National Laboratory
325 Building Extended Life Upgrades

Signature Page



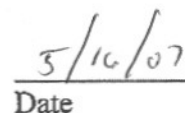
H. Randall Persinger, Team Leader
Safety Basis and Upgrades Review
Oak Ridge Office



Date



George J. Malosh
SC Chief Operating Officer, SC Approval Authority



Date

Acronyms

CRL	Capability Replacement Laboratory
CRAD	Criteria, Review and Approach Document
CSE	Criticality Safety Evaluation
CSP	Criticality Safety Program
D&D	Decontamination and Decommissioning
DF	Design Features
DID	Defense In Depth
DNFSB	Defense Nuclear Facilities Safety Board
DOE	Department of Energy
DSA	Documented Safety Analysis
EDFs	Engineered Design Features
EM	Environmental Management
FASS	Fire Alarm and Suppression System
HA	Hazard Analysis
HFD	Hanford Fire Department
HVAC	Heating Ventilation and Air Conditioning
IBC	International Building Code
LCO	Limiting Condition for Operability
MAR	Material at Risk
MOI	Maximally Exposed Off Site Individual
NFPH	National Fire Protection Association
NPH	Natural Phenomena Hazards
NRC	Nuclear Regulatory Commission
PNNL	Pacific Northwest National Laboratory
PSF	Physical Sciences Facility
REVS	Radioactive Exhaust Ventilation System
RPL	Radiochemical Processing Laboratory
SC	Office of Science
SDS	Safety Design Strategy
SME	Subject Matter Expert
SS	Safety-Significant
SSC	Systems, Structures and Components
TSR	Technical Safety Requirements

Executive Summary

The Capability Replacement Laboratory (CRL) Project at the Pacific Northwest National Laboratory (PNNL) consolidates mission-critical technical capabilities currently housed in multiple buildings throughout the Hanford 300 Area. The CRL Project will retain and extend the operational life of four 300-Area buildings to house some of the mission-critical capabilities and reduce the footprint of new construction on the PNNL Site. One of the 300-Area facilities retained is the Radiochemical Processing Laboratory (RPL), housed in the 325 Building. The RPL is a Hazard Category 2 nuclear facility currently operating under a Department of Energy (DOE)-Environmental Management (EM) approved safety basis.

The RPL will maintain four mission-critical capabilities:

- Shielded Operations
- Radiation Detection
- Materials Science and Technology
- Chemistry and Processing

Major facility hazards are radiological. The bounding accident in the existing approved safety basis is an extremely unlikely seismic event with < 5 rem off-site dose. PNNL has submitted a change to the tritium limits of 325 Building that will reduce the bounding off-site accident dose consequences to < 2 Rem. No accidents "challenge" the off-site evaluation guideline of 25 rem. All of the existing Documented Safety Analysis (DSA) analyzed accidents have an on-site worker dose well below the evaluation guideline of 100 rem. Currently, facility workers are protected from hazardous events by safety management programs.

To provide for the long-term capabilities (nominally 20 years), physical upgrades are planned that promote operational flexibility and the life extension of the RPL. These include seismic improvements, removal of several fume hoods, addition of several small modular hot cells and gloveboxes, roof repairs, improved personnel access, and new Personnel Contamination Monitors. To ensure that DOE fully understood the risks associated with the physical upgrades and the acceptance of the existing safety basis, an evaluation of risks was conducted by PNNL. Changes to requirements, improvements to the existing safety basis via a safety design strategy, and a scoping hazards analysis, updating of the Natural Phenomena Hazards (NPH) assessment, completion of safety system assessments, a 2004-2 evaluation of the ventilation system, cost-benefit analysis, and a major modification evaluation of the upgrades was performed. This information was summarized in a risk assessment provided to DOE. This information provided the basis to DOE on the scope of the upgrades that would be used for the Critical Decision 2 of the CRL Project. The scope of the upgrades was used to determine whether a major modification was applicable under 10 CFR 830.206 and the associated readiness reviews.

DOE has concluded that the modifications identified by PNNL are sufficient for the 20-year life extension. The basis for this conclusion is the following:

- The removal of fume hoods, addition of modular hotcells, and gloveboxes provide Heating Ventilation and Air Conditioning (HVAC) System margin.

- The Safety System Assessments did not identify degradation or ageing concerns. Safety systems are operational and have been maintained.
- The Scoping Hazards Analysis did not identify new hazards or new/different active safety systems. However, the analysis did identify passive Safety-significant (SS) Systems, Structures and Components (SSC).
- The DOE requirements review for impacts to safety basis did not identify significant gaps.
- The NPH Assessment/Analysis was performed to the latest DOE seismic and wind requirements. Deficiencies were identified, PNNL plans to correct the deficiencies and the cost for correcting the deficiencies has been included in Project performance baseline.

Based upon the review performed by DOE, the team concludes that the upgrades identified are adequate and should not be a major modification as defined by 10 CFR 830.206 based upon the following points:

- The identified modifications do not raise to the level of a major modification for the existing EM approved safety basis as defined in 10 CFR 830, Definitions, Subpart B, and DOE Guide 421.1-2, *Implementation Guide for Use in Developing Documented Safety Analyses to Meet Subpart B of 10 CFR 830* (substantially changes safety basis, significant construction).
- Under the anticipated Office of Science (SC) approved DSA, PNNL would be adding two SS SSCs (gloveboxes and hotcells) as Design Features (DFs). However, existing gloveboxes and hotcells would also be designated as SS SSCs, so this would not be considered a substantial change to the safety basis and not a significant construction activity.
- DOE-STD-1189, *Integration of Safety into the Design Process*, is still in draft and anticipated to be issued in August/September 2007. There is an approximately 180-day implementation period after issuance. This draft standard identifies six criteria for determining if a major modification exists. The criteria allow consideration for the complexity and degree of implementation in the determination of a major modification. The designation of hotcells and gloveboxes as design features has the potential to trip one of the six criteria for determining a major modification. However, the modification is not complex since it is related to rather simple systems (design features) that are passive.

To mitigate potential issues for the 325 Building it is important that:

1. Continued establishment of an adequate maintenance budget is paramount in assuring life extension of 325 Building. The review performed for life extension does not guarantee that future replacement of major components of safety systems (fans, fan motors, fire protection deluge valves, etc.,) may not need to take place. Possible operational risk reduction activities (items) are to be mitigated by out-year annual operation maintenance budgets. As existing Project risk is reduced and contingency is freed up, some of items for operational risk reduction may be added to the scope of the project. This recommendation is the responsibility of both the SC and PNNL.

2. Residual contamination may occur from limited construction activities, but contingency and work planning processes are available to address this issue. The revised work control process and management structure being proposed by PNNL should enhance work authorization.

The following recommendations are made associated with this review:

1. The SC Approval Authority directs PNNL to designate the hotcells and gloveboxes as SS- DF and add these to their current Technical Safety Requirements (TSR) when approval authority transfers from the Office of EM to SC.
2. PNNL conduct at a minimum, a contractor led/DOE approved Readiness Assessment based upon the current planned scope of activities. The degree of readiness activity will ensure DOE has a firm basis that the controls have been appropriately implemented.
3. PNNL shall resubmit the revised NPH assessment to DOE within 10 working days of the designation of SC as the 325 Building approval authority that corrects the Exhaust Stack height and documents its non-compliance with PC-2 wind requirements.

The review team had no technical differences of opinion regarding the conclusions and recommendations made.

1.0 Review Process

A team leader was appointed by the SC approval authority to review both the revised safety basis (for extended life) and the proposed upgrades from a DOE risk perspective. To better align contractor and Federal expectations for the risk assessment, DOE prepared logic diagrams (see Attachment A) that identify the key components that would be used for the risk assessment decision. The logic diagrams were designed to address three basic questions:

- How has DOE demonstrated Reliability, Operability and Maintainability for 325 Building safety systems?
- What will be the SC expectations for the safety basis for 325 Building, long-term?
- What requirements were not met/waived because of limited life of 325 Building that need to be fulfilled due to the extended life?

Two of the three logic diagrams were directly associated with the extended life decision. PNNL was to prepare the following documentation for DOE to ensure that the SC Approval Authority had adequate information to make a risk-informed decision. Those documents were:

- Safety Design Strategy, CRL-PLAN-ESH-001, Revision 1.
- Scoping Hazards Analysis and Control Allocation for the 325 Building Extended Mission, CRL-TECH-ESH-004, Revision 0.
- NPH Assessment Update, Report Number 063480111-002, Revision 0, Seismic and Wind Evaluation of the Physical Sciences Facility at *Pacific Northwest* National Laboratory, AREA Corporation, Santa Ana, California, March 2007.
- DOE safety basis requirements review, CRL-TECH-ESH-003, Revision 0, DOE Requirements Review for the Extended-Mission 325 Building Safety Basis.
- 325 Safety System Assessment, ATS21946, March 21, 2007.
- *Hanford* Site Building 325 DNFSB Recommendation 2004-2 Ventilation System Evaluation, CRL-INC-07-0024, Revision 0.
- Facility modification and upgrade determination, 325 Building Extended-Mission Risk Assessment, Section 4.0, Major Modification Determination, CRL-RPT-ESH-001, Revision 0.
- Cost-Benefit Analysis, 325 Building Extended-Mission Risk Assessment, Section 6.0, Cost-Benefit Analysis, CRL-RPT-ESH-001, Revision 0.
- Risk assessment that summarized the above information and included cost benefit information, 325 Building Extended-Mission Risk Assessment, CRL-RPT-ESH-001, Revision 0.

In preparation for the review of the documentation listed above, a team of subject matter experts (SME) (including natural phenomena, criticality safety and ventilation specialists) was identified relative to each of the specific products. Experts reviewed drafts, identified and documented any comments (see Attachments B-H), and worked with the contractor to reach a satisfactory disposition. Subsequently, PNNL revised the document and provided a final version to DOE. This information provides the basis to DOE on the scope of the upgrades that will be used for the Critical-Decision 2, of the Capabilities Replacement Laboratory project. The scope of the upgrades also drives whether a major modification is applicable under 10 CFR 830.206 and the associated readiness reviews. Following the individual document reviews, a safety evaluation-like report was prepared consistent with

applicable portions of DOE-STD-1104, Change Notice 3, to document the review and provide recommendations to the SC Approval Authority.

2.0 Base Information

Utilizing the logic charts developed by DOE for the nuclear safety aspects of the Physical Sciences Facility (PSF), the following documents were reviewed:

- *Safety Design Strategy*, CRL-PLAN-ESH-001, Revision 1.
- *Scoping Hazards Analysis and Control Allocation for the 325 Building Extended Mission*, CRL-TECH-ESH-004, Revision 0.
- *NPH Assessment Update*, Report Number 063480111-002, Revision 0, *Seismic and Wind Evaluation of the Physical Sciences Facility at Pacific Northwest National Laboratory*, AREA Corporation, Santa Ana, California, March 2007.
- DOE safety basis requirements review, CRL-TECH-ESH-003, Revision 0, DOE Requirements Review *for the Extended-Mission 325 Building Safety Basis*.
- *325 Safety System Assessment*, ATS21946, March 21, 2007.
- *Hanford Site Building 325 DNFSB Recommendation 2004-2 Ventilation System Evaluation*, CRL-INC-07-0024, Revision 0.
- Facility modification and upgrade determination, 325 Building Extended-Mission Risk Assessment, Section 4.0, Major Modification Determination, CRL-FWT-ESH-001, Revision 0. RPT
- Cost-Benefit Analysis, 325 Building Extended-Mission Risk Assessment, Section 6.0, Cost-Benefit Analysis, CRL-FWT-ESH-001, Revision 0. RPT
- Risk assessment that summarized the above information, 325 Building Extended-Mission Risk Assessment, CRL-FWT-ESH-001, Revision 0. RPT

SLP
4 DOE-SC
Typo
5/16/2007

The information above was intended to provide to DOE; the key identification of gaps, potential changes to the project scope associated with these gaps and overall risks to DOE for extended operations of 325 Building and the continued use of the 325 Building safety basis until upgrades would occur. This report evaluates the adequacy of each of these products, which then determine the risks of operations under the existing safety basis as well as forecasting operations under the future SC safety basis.

3.0 Safety Design Strategy

Description

This document was intended to establish the strategy and approach to the safety basis development for 325 Building during the design of the project. This document also defines criteria for classifying SSCs and identifying expectations for the updated SC approved DSA/TSRs.

Evaluation Criteria

- 10 CFR 830, Subpart B, Safety Basis Requirements, January 10, 2001.
- DOE-STD-1189 (draft), Integration of Safety into the Design Process, REVCOM version (March 2007).

- DOE-STD-3009, Change Notice 3, *Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Documented Safety Analyses*, March 2006.

Evaluation Findings

DOE comments were primarily associated with establishing SC safety basis expectations that were different from Office of EM and ensuring appropriate approval of the respective deliverables. SC expectations included the identification of potential engineered controls for the facility worker in addition to safety management programs. Criteria used for the evaluation of on-site worker risk were also established (Table 1) consistent with DOE-STD-1189 (draft). All DOE comments were dispositioned and a revised document was submitted. Overall the document was adequate in providing a framework for how the existing safety basis would be evaluated for an extended life usage and how safety system and operational risks would be identified to DOE.

Conclusion

The Safety Design Strategy adequately provides a methodology for evaluating and upgrading the existing 325 Building safety basis. The strategy also identifies the necessary products for DOE to utilize in making a decision of risk acceptance relative to the 325 Building upgrades. This document ensures that the base information is provided to DOE.

4.0 Scoping Hazards Analysis and Control Allocation

Description

This document was intended to evaluate hazards in the 325 Building consistent with the SC expectations for the updated DSA/TSRs. The evaluation criteria established in the *Safety Design Strategy* was used. The differences in the control set (between the existing EM approved safety basis and the SC updated safety basis) would have the potential to be items that might affect scope of the 325 Building upgrades.

Evaluation Criteria

- DOE-STD-3009-94, Change Notice 3, *Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Documented Safety Analyses*, March 2006.
- DOE-STD-1189 (draft), *Integration of Safety into the Design Process*, REVCOM version (March 2007).

Evaluation Findings

There were no new hazards or accidents identified in the scoping hazards analysis. 174 events were postulated with 85 having serious impacts to the facility worker and 15 events were determined to result in dose consequences that were greater than low to the public or on-site worker. The ventilation system in the 325 Building, currently designated as safety-significant, was only used as defense-in-depth. Initially the Material at Risk was not clearly defined and clarifications were needed on some frequencies and release descriptions. All DOE comments were dispositioned and a revised document was submitted.

Conclusion

The revised document is adequate to ensure that new controls associated with SC expectations of a revised safety basis have been identified. The two new controls (gloveboxes and hotcells), are both engineered design features and ensure protection to the facility worker. However, in the time period until the revised DSA/TSR is developed, approved, and implemented, the rigor of these two controls is less than SC would prefer. It is recommended that the SC Approval Authority direct PNNL to designate the hotcells and gloveboxes as SS-DF and add these to their current TSR when approval authority transfers from the Office of EM to SC. (Action SC Approval Authority)

5.0 NPHs Assessment

Description

A natural phenomena assessment is required every 10 years per DOE Order 420.1B and was performed on the 325 Building.

Evaluation Criteria

- DOE Order 420.1B, *Facility Safety*, December 22, 2005.
- DOE-STD-1020-2002, *Natural Phenomena Hazards Design and Evaluation Criteria for Department of Energy Facilities*, January 2002.
- IBC, *International Building Code 2006*.
- ASCE/SEI 7-05, *Minimum Design Loads for Buildings and Other Structures*.
- DOE/EH-0545, *Seismic Evaluation Procedure for Equipment in U.S. Department of Energy Facilities*.

Evaluation Results

The seismic evaluation was conducted against Performance Category 2 criteria. For PC-2 SSCs DOE-STD-1020-2000, specifies International Building Code (IBC) 2000 seismic design criteria for Seismic Use Group III. PNNL proposed enhancements to the facility to meet IBC 2006. The seismic evaluation determined that PC-2 seismic criteria for the PC-2 design basis earthquake were satisfied for the C Annex, Filter Building, Exhaust Tunnel, Underground Vault, Exhaust Stack, and Exhaust Plenum. However, PC-2 criteria were not satisfied for various structural components of the original buildings, A Annex and B Annex. The non-compliant structural components were identified for upgrades. For the wind loading analysis, the evaluation originally determined no deficiencies existed. However, it was discovered that the incorrect stack height had been used for the evaluation of the Exhaust Stack. A re-evaluation determined that the 325 Building stack would require some improvements (guide-wires) to meet the PC-2 requirements for wind. The Exhaust Stack met seismic criteria requirements. DOE's only comment was requesting PNNL to describe the process that would be used for substantiating and tracking to closure several assumptions used in the analysis.

Conclusion

The NPH Assessment adequately identified the appropriate upgrades to the facility associated with the design basis earthquake and wind loading analysis with one exception. The NPH assessment is to be revised to correct the Exhaust Stack height and document its non-compliance with PC-2 wind requirements.

6.0 Safety Requirements Review

Description

Originally, the 325 Building was scheduled to only operate three more years. As a result, some safety basis requirements were not fully implemented due to the limited life. In conjunction with the extended life decision, a review of the DOE directives and standards issued since 2002 was performed to identify safety basis requirements that needed to be incorporated to bring the updated DSA into compliance with these new requirements.

Evaluation Criteria

- DOE O 413.3A, Program and Project Management for the Acquisition of Capital Assets, February 2006.
- DOE O 420.1B, Facility Safety, December 2005.
- DOE-STD-3009-94 CN3, Preparation Guide for US. *Department of Energy* Nonreactor Nuclear Facility Documented Safety Analyses, March 2006.
- DOE-STD-1186-2004, *Specific Administrative Controls*, August 2004.
- DOE-HDBK-1163-2003, Integration of Multiple Hazard Analysis Requirements and Activities, October 2003.
- DOE-STD-3014-2006, Accident Analysis for Aircraft Crash into Hazardous Facilities, May 2006.
- DOE-STD-3007-2007, Guidelines for Preparing Criticality Safety Evaluations at *Department of Energy* Non-Reactor Nuclear Facilities, February 2007.

Evaluation Results

The guidance of DOE-STD-1186-2004, *Specific Administrative Controls*, has not been incorporated into the current safety basis. Consideration of the Radioactive Material Limits, currently contained in a Limiting Condition for Operability (LCO), and aspects of the Nuclear Criticality Safety Program being made *Specific Administrative Controls* will be evaluated in the upgrade DSA and TSR. DOE-STD-1186-2004 allows the use of an Administrative Control or the use of a LCO. No changes were determined to be necessary in the current safety basis for the interim period of time until the upgraded safety basis is approved and implemented.

The Nuclear Regulatory Commission (NRC) methodology was used for accident analysis for aircraft crashes into the 325 Building. DOE-STD-3014-2006, *Accident Analysis for Aircraft Crash into Hazardous Facilities*, will be used to evaluate aircraft crashes into the 325 Building for the upgraded safety basis. Due to the conservative nature of each methodology, expectations are that there will be no change to the safety basis as a result of the use of DOE-STD-3014-2006.

DOE comments on this section were primarily focused on clarifications on the discussion. All DOE comments were dispositioned and a revised document was submitted.

Conclusion

The revised document is adequate to ensure that the appropriate standards will be utilized for the revised DSA/TSR to meet the extended life mission.

7.0 Safety System Assessment

Description

The purpose of the safety system assessment was to determine the operability, reliability and maintainability of active safety systems in the 325 Building for an extended 20 years operational life. This assessment was to be conducted consistent with the Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 2000-2, *Configuration Management, Vital Safety Systems*.

Evaluation Criteria

- DOE Implementation Plan Recommendation 2000-2, *Configuration Management, Vital Safety Systems*, U.S. DOE, Washington, D.C., October 31, 2000, DNFSB Recommendation 2000-2, *Configuration Management, Vital Safety Systems*, DNFSB, Washington, D.C., March 8, 2000.
- DOE Phase I Criteria, Review, and Approach Document (CRAD) for the Assessment of Operational Readiness of Vital Safety Systems, (<http://www.deprep.ortr/vss/Phase1CRAD.PDF>).
- *Model Assessment Criteria and Guidelines For Performing Phase II Assessments of Vital Safety Systems At Defense Nuclear Facilities*, September 2001.

Evaluation Results

Phase I assessments were performed on all the 325 Building active safety systems that included; a) fire alarm and suppression; b) criticality alarm system; c) radioactive exhaust ventilation system; d) faulted electrical system; and 5) portions of the compressed air system. The evaluation did not identify any significant gaps utilizing the Phase I assessment's 2000-2 CRADs. Based upon the criteria PNNL developed in the Safety Design Strategy, no Phase II assessments were necessary. Comments by DOE focused on the reliability of the fire protection suppression system, fire alarm testing and availability of fire department resources. Comments were satisfactorily dispositioned but it should be noted that currently, infrastructure supporting safety systems (fire suppression water supply and electricity) have not been defined after the Office of EM completes Decontamination and Decommissioning (D&D) of 300 area (planned for 2011).

It should be noted that based upon the safety assessment reviews, the 325 Building has been adequately maintained to ensure performance of its active safety systems, however, continued establishment of adequate maintenance budget is paramount in assuring life extension of facility. The review performed for life extension does not guarantee that future

replacement of major components of safety systems (fans, fan motors, fire protection deluge valves, etc.) may not need to take place within the 20 year life extension. Possible operational risk reduction activities (items) are to be covered by out-year annual operation maintenance budgets. As existing Project risk is reduced and contingency is freed up, some of items may be added to the scope of the project. It will be important for SC to ensure that the appropriate maintenance budget is maintained and if project contingency would become available, some operational risks could be reduced.

Conclusion

The safety systems assessments have determined that the systems have been maintained with no degradation or ageing concerns noted. The safety systems can support an extended life mission provided an adequate maintenance budget is maintained.

8.0 2004-2 Ventilation System Assessment

Description

A review of the Radioactive Exhaust Ventilation System in the 325 Building consistent with DNFSB 2004-2 Implementation was conducted to evaluate the confinement system safety function.

Evaluation Criteria

- DNFSB Recommendation 2004-2, Active Confinement Systems, Defense Nuclear Facilities Safety Board, Washington, D.C., December 7, 2004.
- DNFSB 2004-2 Implementation Plan, Active Confinement Systems, Revision 1, July 12, 2006.
- Letter, A. Lawrence to A. Eggenberger reporting completion of Deliverable 8.6.4 in the 2004-2 implementation plan, Active Confinement Systems, which requires the Department to revise the Ventilation System Evaluation Guidance document based on experience and lessons learned from the pilot facility evaluations, March 6, 2007.

Evaluation Findings

The 2004-2 evaluation indicated that there were no gaps identified primarily due to the lack of crediting this system in the hazards analysis scoping study. DOE comments on this document were focused on the classification of Radioactive Exhaust Ventilation System (REVS) in the current safety basis, lack of evaluation of the applicable portions of the compressed air system and appropriateness of gaps identified in other 2004-2 assessments to the REVS. All DOE comments were dispositioned and a revised document was submitted.

Conclusion

The revised document is adequate to conclude that there were no gaps associated with the 2004-2 REVS evaluation.

9.0 Facility Modification and Upgrade Determination

Description

The purpose of this document was to determine if the scope of the changes proposed by PNNL would result in a major modification determination as described by 10 CFR 830.206

Evaluation Criteria

- 10 CFR 830, Subpart B, Safety Basis Requirements, January 10, 2001.
- DOE-STD-1189 (draft), Integration *of Safety* into the Design Process, REVCOM version (March 2007).
- DOE Guide 424.1-1A, (Section B.14.6), Implementation Guide for Use in Addressing Unreviewed *Safety* Question Requirements, July 24, 2006.
- DOE Guide 421.1-2, Implementation Guide for Use in Developing Documented Safety Analyses to meet Subpart B *of 10 CFR 830*, October 10, 2001.

Evaluation Findings

Table 4-1 of 325 Building Extended-Mission Risk Assessment, Section 4.0, Major Modification Determination, CRL-RPT-ESH-001, Revision 0, identifies the proposed upgrades to the 325 Building. The Hazards Analysis Scoping study identified two new engineered design features that would require a change to the TSRs. However, no changes to the safety basis were expected that would result in new hazards or accidents. In addition Table 4-2 identifies the classification of the controls based upon the Hazards Analysis Scoping Study. Using the six questions in DOE-STD-1189, only the fifth question may potentially trip a major modification. Based upon the clarifying detail in the draft DOE-STD-1189, consideration of the relative complexity of the controls and ease to which the controls can be implemented may be taken into consideration if the proposed change is a major modification. PNNL concluded that the change was not a major modification. DOE comments were focused primarily on the changes to engineered design features and impacts to the TSRs.

Conclusion

DOE agrees with the conclusion and basis provided by PNNL that a major modification associated with the 325 Building upgrades does not exist as currently scoped due to the lack of significance in change to the safety basis.

10.0 Cost Benefit Analysis

Description

The purpose of this document was to provide a high-level set of options to the Approval Authority beyond those proposed by PNNL. This information was to take into consideration qualitative benefits and discussion.

Evaluation Criteria

- DOE-STD-1104, Change Notice 3, *Review and Approval of Nuclear Facility Safety Basis Documents (Documented Safety Analyses and Technical Safety Requirements)*, November 2005.

Evaluation Findings

PIWL identified three options for enhancing/removal of scope. In each case, the discussion provided a technical basis why that option was not selected. DOE comments focused on providing alternatives beyond those already proposed by PNNL to the Approval Authority. All comments were dispositioned and the document was resubmitted.

Conclusion

DOE agrees with the conclusion that no additional or reduction in scope is necessary to upgrade the 325 Building for an extended life.

11.0 Risk Assessment

Description

The purpose of this document was to summarize the risks to the Approval Authority associated with extending the operational life of the 325 Building for 20 years and working under the existing safety basis until upgrades could be performed to meet SC expectations for an extended life.

Evaluation Criteria

- 10 CFR 830, Subpart B, *Safety Basis Requirements*, January 10, 2001.
- DOE-STD-1104, Change Notice 3, *Review and Approval of Nuclear Facility Safety Basis Documents (Documented Safety Analyses and Technical Safety Requirements)*, November 2005.
- DOE-STD-3009, Change Notice 3, *Preparation Guide for US Department of Energy Nonreactor Nuclear Facility Documented Safety Analyses*, March 2006.
- DOE-STD-1189 (draft), *Integration of Safety into the Design Process*, REVCOM version (March 2007).
- DNFSB 2000-2 Implementation Plan, *Configuration Management Vital Safety Systems Implementation Plan*, October 31, 2000.
- DNFSB 2004-2 Implementation Plan, *Active Confinement Systems*, Revision 1, July 12, 2006.
- Letter, A. Lawrence to A. Eggenberger reporting completion of Deliverable 8.6.4 in the 2004-2 implementation plan, *Active Confinement Systems*, which requires the

- DOE-STD-1020-2002, *Natural Phenomena Hazards Design and Evaluation Criteria for Department of Energy Facilities*, January 2002.

Evaluation Findings

PNNL concluded that the scope of the upgrades and existing maintenance practices to the facility would meet a 20-year life extension. Section 3.6, of the Risk Assessment specifically describes the risk of utilizing the current safety basis until implementation of the revised upgraded DSA/TSR. Note that PNNL has submitted a change to the existing safety basis that reduces the tritium inventory by –70% significantly reducing the off-site bounding accident dose consequences from <5 Rem to <2 Rem. In addition, changes to the management structure and work control process will enhance the safety management programs and reduce operational risks. DOE's review of the report identified the need to address 10 CFR 830, Subpart B, and operational risks rather than primarily project risks. In consideration of the changes to the engineered design features that will result in TSR changes, the readiness activities should involve DOE approval. The comments were dispositioned and the document was revised and submitted.

Conclusion

DOE agrees with the conclusion that the risks under 10 CFR 830, Subpart B, and the operational risks for supporting a 20-year extended life are acceptable. It is recommended that PNNL conduct at a minimum, a contractor led/DOE approved Readiness assessment based upon the current planned scope of activities. The degree of readiness activity will ensure DOE has a firm basis that the controls have been appropriately implemented.

12.0 Actions/Conditions of Approval

Three actions/conditions of approval are recommended in conjunction with this review:

1. The SC Approval Authority directs PNNL to designate the hotcells and gloveboxes as SS-DF and add these to their current TSR when approval authority transfers from the Office of EM to SC. (Action SC Approval Authority)
2. PNNL conduct at a minimum, a contractor led/DOE approved Readiness assessment based upon the current planned scope of activities. The degree of readiness activity will ensure DOE has a firm basis that the controls have been appropriately implemented. (Action PNNL)
3. PNNL shall resubmit the revised NPH assessment to DOE within 10 working days of the designation of SC as the 325 Building approval authority that corrects the Exhaust Stack height and documents its non-compliance with PC-2 wind requirements. (Action PNNL)

13.0 Records

The following records document that comments and dispositions that DOE developed throughout the review:

Attachment A - DOE Logic Charts

Attachment B - DOE Review Comments for the Safety Design Strategy

Attachment C - DOE Review Comments for the Safety Basis Requirements Review

Attachment D - DOE Review Comments for the Scoping Hazards Analysis

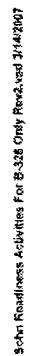
Attachment E - DOE Review Comments for the Safety System Assessments

Attachment F - DOE Review Comments for the Natural Phenomena Hazards Assessment Update

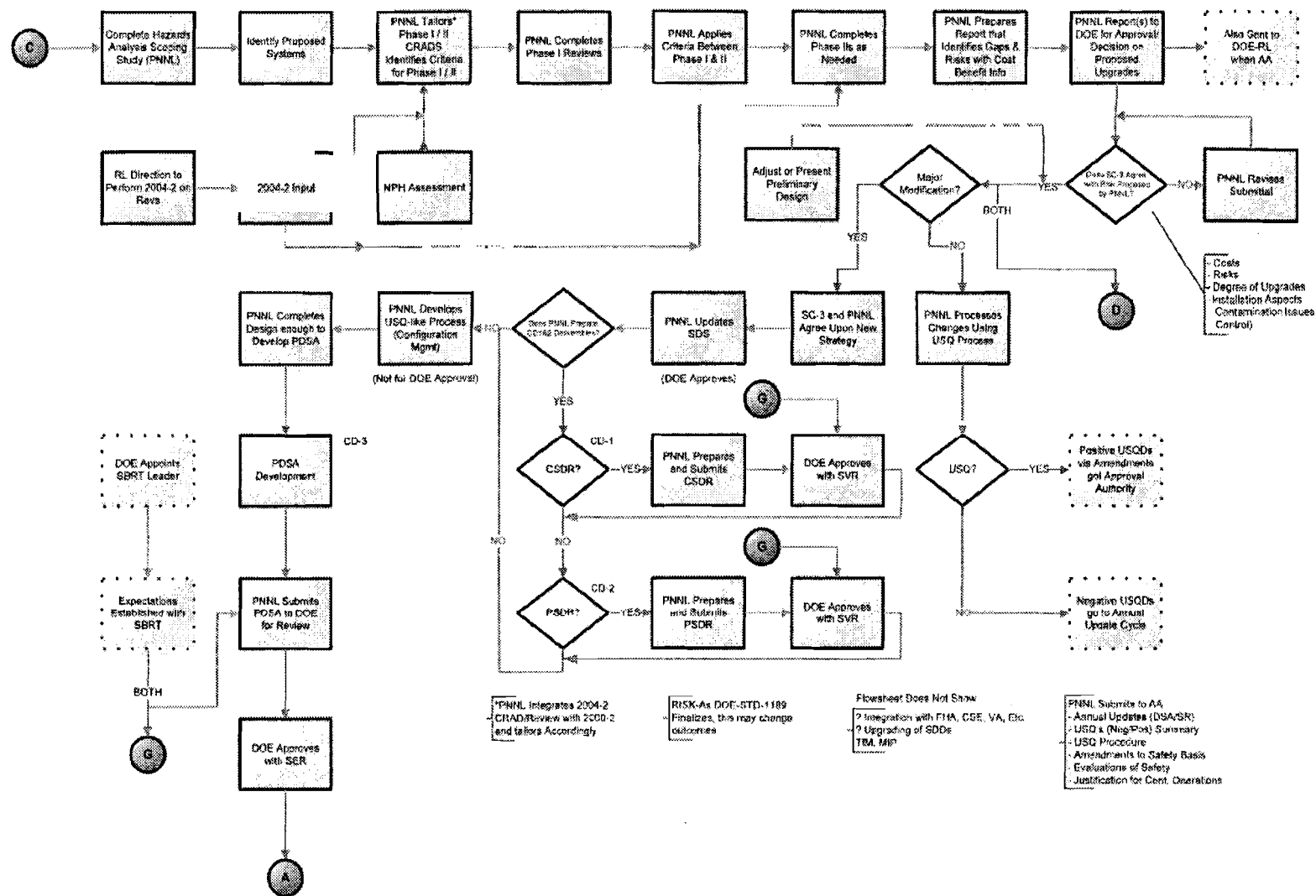
Attachment G - DOE Review Comments for the 2004-2 Ventilation System Evaluation

Attachment H - DOE Review Comments for the 325 Building Extended-Mission Risk Assessment

Attachment A
DOE Logic Diagrams



EXTENDED LIFE EVALUATION For B-325





Attachment B

DOE Review Comments for the Safety Design Strategy

PNNL Responses to DOE comments on the Radiochemical Processing Laboratory (RPL) Life Extension Safety Design Strategy and RPL Safety System Assessment Plan

The following matrix contains PNNL responses to the comments received March 5, 2007 regarding the *Radiochemical Processing Laboratory (RPL) Life Extension Safety Design Strategy and RPL Safety System Assessment*. Many of these issues or comments were addressed during discussions held during the Lelunan review of April 10 – 11, 2007, with both DOE PNSO and the Safety Basis Review Team Lead (Randy Persinger – DOE ORO) in attendance.

DOE PNSO Comment	PNNL Response
1. General: DOE-STD-1189 is in draft form and not approved by DOE. Parts of this document are used in the Safety Design Strategy, while other portions are not. Is PNNL ready to accept all parts of the document, or is the Battelle intending to selectively use the document? If partial, what is the graded approach?	This reference was clarified in Section 2.0 that no other parts of 1189 are applicable except as specified in the Safety Design Strategy (SDS). The SDS notes that the draft standard is being used as a "guideline" for the development of the SDS. It is not the intent of PNNL to fully adopt the DRAFT DOE STD-1189 into the proposed work scope relating to Building 325 and the DSA update. If DOE does publish the FINAL standard, PNNL will evaluate and incorporate the standard as appropriate via the Laboratory Contract modification process and in the Standards Based Management System.
2. Page 2, section 1.0, last line: Though the 325 Life Extension scope was added to the PSF Project in the post-CD-1 phase, its definition is expected to evolve and mature commensurate with any project of this type. DOE-STD-1189 requires DOE approval – at the outset of a project (i.e., at CD-0) – of a Safety Basis Strategy (SBS), and it appears that this Safety Design Strategy server, the intent of a SBS. It is expected that Battelle will submit this document for DOE approval.	The SDS was included as part of the DOE O 41.3.3A required CD-2 package, and was also posted to the project website for reference. DOE is fully expected to review and approve this plan in accordance with the charter of the DOE Safety Basis Review Team (SBRT) that has been developed for the project's nuclear safety related document submittals.
3. Page 3, section 3.0, 3.1 and 3.2: Battelle has made the statement that this will not constitute a major	Section 3.1 was clarified to note that this is a project assumption. The CRL project baseline, and as captured in the Project Risk Registry.

modification. However, this was an <u>assumption</u> that PNNL made in the planning and is being confirmed by the system walkdowns, etc. This needs to be characterized in this plan as an assumption rather than a fact as it leads the reader to believe that the determination has already been made although PNNL has stated that it will use its existing processes to determine if the major modification threshold is tripped.	includes the risk that a "major modification" to the Building 325 safety systems is identified. As is also noted, the project baseline assumes that if a "major modification" is identified, then a change to the project baseline will be processed.
4. Page 4, section 3.3: Please add that there will be Federal involvement for oversight.	So noted in section 3.3 that Federal (DOE) participation is anticipated.
5. Page 4, section 3.3 and Attachment 1: The implementation plan for 2000-2 had two phases, both involving CRADs. Why is only the Phase I CRAD used in this Plan? The Phase I CRADs are intended to be higher level, primarily paper reviews, while the Phase II are detailed implementation reviews. Criteria are used to demonstrate which would advance on to Phase II with the ultimate decision being made by DOE. Please provide a logic why Phase II reviews would not be conducted, or propose a logic of what would trigger a Phase II.	Attachment 2 was added to the plan to provide for the possibility of a Phase II assessment: includes criteria for determining applicability. As noted in the Safety System Assessment report, the need for additional, Phase II system assessment was subsequently found not to be necessary based on the observations of the team in accordance with the Phase II decision criteria (Attachment 2 of the plan).
6. Page 3, section 3.3.1, second paragraph first sentence: Please clarify the classification of the ventilation system and the rationale/justification for that determination. The DSA calls it a Safety Significant System.	The section states that RPL safety systems are the subject of the Safety System Assessment. The radioactive exhaust ventilation system is safety significant (SS) and therefore included in the scope of the assessment. Rationale for SS designation is contained in the RPL DSA and beyond the scope of the SDS or the assessment plan. No change to the SDS was made.
7. Page 5, section 4.1, para 2: Please confirm that the development of functional requirements and performance	Functional requirements were called out and clarified to add performance criteria to section 4.1. Additional text was added to clarify that this is included in the scope of this activity.

criteria is included in the scope of revision of the DSA.	
3. Page 6, section 5, 9 th bullet – Revise "...DOE-SC regulatory authority...." to "...DOE-SC approval authority.. ."	Accepted. Revision made.
9. Page 6, section 6.0: Please provide the PNSO FPD with a copy of item 8 (DOE Requireinents Review, RPL Extended Mission. In addition, please cite which version of 1189 (by date) since it is continuing to evolve.	The date of the DRAFT DOE STD-1189 referenced is February 26, 2007. Item 8, the DOE Requirements Review, RPL Extended Mission was included as part of the DOE O 413.3A required CD-2 package, and was also posted to the project website for reference. DOE PNSO and the Safety Basis Review Team Lead (Randy Persinger) have been provided hard copies of this review.
10. Page 7, appendix A, item 1: The argument about what challenges the evaluation guidelines is a function of sensitivity and uncertainty. Without knowing those two aspects for the 6 Rem accident, it may "challenge" the evaluation guidelines.	These aspects added to the section; example deleted.
11. Page 7, appendix A, item 2: What will be used for chemical, 1189 or 151.1C? Please show the bins also.	Test notes that 151.1C is used to screen in anything requiring an EPHA and states that RPL contains only laboratory quantities of non-radiological hazardous material, which would not require an EPHA per 151.1C and NFPA 704 (this is also consistent with the DRAFT DOE STD-1189). Footnote added to Table 1 to clarify this expectation. Both the DRAFT DOE STD-1189 and DOE O 151.C are referenced in Table 1 of Appendix A as the reference with regard to hazardous materials considerations and exposure guidelines.
12. Page 8: Need to change 420.1A to 420.1B.	Changed.

REVIEW COMMENT RECORD (RCR)				1. Date 04114107		2. Review No. HAR-01	
				3. Project No.		4. Pages 7	
5. Document Number(s)/Title(s) Safety Design Strategy CRL-PLAN-ESH-001 Revision 0			6. Program/Project/Building Number PNNL CRL Project		7. Reviewer R. Persinger (RP)		8. Organization/Group ORO-AMS
							9. Location/Phone 509-372-4546 509-372-4900 509-372-4508 509-372-4284 509-372-4750 509-372-4014 865-241-6588 509-372-4931 301-903-8388 509-372-4007 509-372-3972
10. Comment Submittal Approval:		11. Agreement with indicated comment disposition(s)			12.		
<p>_____</p> <p>Organization Manager (Optional)</p>		<p>_____</p> <p>Reviewer/Point of Contract</p> <p>_____</p> <p>Date</p> <p>_____</p> <p>Author/Originator</p>			<p>_____</p> <p>Reviewer/Point of Contact</p> <p>_____</p> <p>Date</p> <p>_____</p> <p>Author/Originator</p>		
13. Item	14. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	15. Hold Point	16. Disposition (Provide justification if NOT accepted.)			17. Status	
-01	Section 1, last paragraph, last sentence – SDS approval/concurrence should be by DOE safety basis approval authority.		Sentence added to the end of Section I, last paragraph that says: “The SDS will be approved by the DOE safety basis approval authority”.				
-02	Section 3.1 – Add Paragraph that RPL Life Extension DSA (upgraded DSA) will need to meet 10CFR830, Subpart B safe harbor methodology for a Hazard Category 2 nuclear facility.		Paragraph added to Section 3.1 that says: "The upgraded DSA will meet requirements from 10CFR830, Subpart B safe harbor methodology for a Hazard Category 2 nuclear facility."				
-03	Sections 3.1 and 3.2 stress what does not apply with no mention of what does apply. DOE 420.1B has more than design criteria. DOE 420.1B has requirements for Fire Protection, NPH and Criticality. Review of upgraded DSA will include evaluating that the appropriate requirements of these 420.1B sections have been incorporated. These sections should be revised to include.		Paragraph added in Section 3.2, between the first and second paragraph that says: "DOE 420.1B also has requirements for Fire Protection, NPH and Criticality which will be addressed during development of the upgraded DSA."				
-04	Section 3.3 – Scoping Hazards Analysis and upgraded DSA may indicate different functional requirements/performance criteria for SS SSCs than what is in the existing DSA. Actions to address this should be included in this section.		Sentence added to Section 3.3, 3 rd paragraph. "It is possible, but not anticipated, that the safety development process will identify additional needed safety elements. If that occurs, then the project will determine the adequacy of the identified structure, system or component to perform a defined safety function for the extended mission."				

Item	Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	15. Hold Point	16. Disposition (Provide justification if NOT accepted.)	17. Status
-05	Section 4.1 – Results, recommendations, discussion of gaps and acceptability of gaps from sections 3.2, 3.3, and 3.4 should be included in upgraded DSA.		Paragraph added to the end of Section 4.1 that says: "Development of the upgraded DSA will also incorporate the results of a review of new DOE safety basis related requirements (i.e. requirement issued or reissued after development activities of the current RPL DSA began) which are documented in CRL-TECH-ESH-003, <i>DOE Requirement Review – RPL Extended Mission.</i> "	
-06	Section 5 – This section addresses activities. It should also include (or list in another section) what the deliverables to DOE will be.		Bullet added to the end of Section 5 that says: "Identification of detailed project deliverables are provided by the project schedule."	
-07	Reference: 8, - Please provide.		The reference was provided. Comment withdrawn.	
-08	Appendix A. item 1, second bullet – Consideration of SS classification for DID in the cases of greater than 5 rem should be mentioned. This would be consistent with Table I.		The end of Bullet #2 in Appendix A, Item #1, modified (just after the parenthetical remark to say: "and whether a DID designation is desired."	
-09	Attachment 2, "Criteria for Initiating Phase 2 Assessments – The bar is set too high for considering if a Phase II assessment is needed. The second bullet alone should be sufficient to call for a Phase II assessment. Phase I assessments results transmittal to DOE should contain contractor's recommendation regarding the need for a Phase II assessment.		Comment withdrawn.	
-10	2000-2 Assessments should be listed as a deliverable to DOE.		Comment withdrawn.	

Attachment C

DOE Review Comments for the Safety Basis Requirements Review

REVIEW COMMENT RECORD (RCR)		1. Date 04/14/07		2. Review No HAR-01	
		3. Project No.		4. Pages 7	
5. Document Number(s)/Title(s) DOE Requirements Review RPL Extended Mission CRL-TECH-ESH-003 Revision 0		6. Program/Project/Building Number PNNL CRL Project		7. Reviewer R. Persinger (RP)	
				8. Organization/Group ORO-AMS	
				9. Location/Phone 509-372-4546 509-372-4900 509-372-4508 509-372-4284 509-372-4750 509-372-4014 865-241-6588 509-372-4931 301-903-8388 509-372-4007 509-372-3972	
10. Comment Submittal Approval:		11. Agreement with indicated comment disposition(s)		12.	
<p>_____ Organization Manager (Optional)</p>		<p>_____ Reviewer/Point of Contract</p> <p>_____ Date</p> <p>_____ Author/Originator</p>		<p>_____ Reviewer/Point of Contact</p> <p>_____ Date</p> <p>_____ Author/Originator</p>	
13. Initial		14. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)		15. Hold Point	
1.		Section 2.2, penultimate paragraph – This paragraph indicates that DOE-STD-I 189-2006 will be considered for potential impacts to the 325 Building Safety Basis for the extended mission. Please ensure that this is consistent with the Safety Design Strategy (SDS) document.		16. Disposition (Provide justification if NOT accepted.) Accept. DOE-STD-1189 will be added to the bulleted list as draft version. And the following text will be substituted for the 2 nd paragraph of Section 2.2. When DOE-STD-1189-2006, <i>Integration of Safety into the Design Process</i> , is released, it will be considered for impact per our normal management processes. This document is intended for new facilities and Major Modifications. Therefore, there is no expectation that facilities performing facility upgrades will be required to retro-fit design criteria and processes based on the new guidance. None-the-less, there is information in the draft version of DOE-STD-I 189 that is currently being considered because to provides analysis criteria and clarification that doesn't exist in other sources (e.g. more detailed functional classification criteria	
				17. Status	

13. Item	14. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	15. Hold Point	16. Disposition (Provide justification if NOT accepted.)	17. Status
			related to the facility worker).	
	Table 3.1, DOE O 421.1B, "Upgrade to Fire Protection Program", fourth column, "To Be Considered" – The response for this item is "No". Section 3.5.2 and 4.4 indicate that the requirement is applicable to 325 and that building fire protection engineers are currently evaluating and are in the process of preparing a Record of Decision. It appears that the "No" response should have been a "Yes" response.		Accept. Although, no needed changes are anticipated as a result of this reissued order, it is concurrently being considered (i.e. "Yes")	
	Section 3.3, third paragraph, page 5 – A statement is made in this paragraph that DOE-STD-3007-2007 includes guidance about acceptable methods of identifying potential contingency scenarios, guidance about linkage to the DSA, and the standard will be considered as appropriate for changes to Criticality Safety Evaluation (CSEs). Would not the addition of the new hot cells be cause for a change to the CSEs (or new CSEs) that would be applicable to this project? The potential use of fissile material in the new hot cells certainly should drive some sort of CSE early to provide input to the design requirements of these hot cells.		The PNNL criticality safety program meets the ANSI criticality safety standards required by DOE O 420.1B and is consistent with the guidance of DOE-STD-3007. RPL hot cell operations primarily involve irradiated component samples and limited quantities of irradiated reactor fuel. Handling of large quantities (>100 grams) of fissile material is not part of normal RPL hot cell operations. The existing criticality safety evaluation and specification for RPL hot cell operations are extremely conservative (<170 grams Pu permitted in a hot cell) and are not sensitive to the addition or design of new hot cells. A PNNL senior criticality safety analyst has reviewed the designs for the new hot cells and will determine what, if any, changes are necessary to RPL criticality safety evaluations and specifications.	
4.	420.1B made changes to the Nuclear Criticality Section that included requiring the contractor to submit, for DOE review and approval, a Criticality Safety Program (CSP) document. Does PNNL have a DOE approved CSP document and, if so, provide a copy.		DOE O 420.1B was recently added to the PNNL contract with DOE. PNNL is in the process of developing a CSP description document for DOE approval as required by 420.1B. Nuclear criticality safety staff responsible for implementing the PNNL CSP have been trained and qualified consistent with DOE-STD-I 135-99. The PNNL Criticality Safety Training and Qualification Plan has been reviewed and approved by DOE.	
5.	Sections 3.5.2, 4.4 – These two sections indicate there is a new requirement for fire-related construction and barriers for isolation of hazardous areas to minimize fire spread and loss potential. This would appear to potentially have cost implications if not schedule implications that would be a factor in the extended life evaluation of 325. State when the Record of Decision will be available for review by DOE.		Accept. The following text will be incorporated into the 2 nd paragraph of Section 3.5.2. No needed changes are anticipated as a result of clarifications made to fire protection requirements in this reissued order (i.e. DOE O 420.1B). The previous requirement from 420.1A (CRD Paragraph 4.2.2.2) was editorially restructured and clarified in 420.1B [CRD Chapter II, Paragraphs 3.c.(2) and (3)], but did not introduce new requirements for installation of fire barriers or rated construction.	
	Table A.1, page 11, DOE O 151.1C – The SDS document indicates that DOE O 151.1C will be used to screen hazardous chemicals in the hazards analysis of the safety basis. Explain why this order should not be discussed in Section 3.0.		DOE O 151.1C defines policy related to emergency planning and preparedness. It does not define safety basis related requirements. The SDS proposes that designation of SS SSCs for protection from non-radiological exposure be considered for material that requires an Emergency Planning	

Attachment D

DOE Review Comments for the Scoping Hazards Analysis

REVIEW COMMENT RECORD (RCR)					1. Date 04/22/07	2. Review No. HAR-01
5. Document Number(s)/Title(s)			6. Program/Project/Building Number	7. Reviewer(s)	3. Project No.	4. Pages 7
Scoping Hazards Analysis and Control Allocation for the 325 Building Extended Mission CRL-TECH-ESH-004 (Draft)			PNNL CRL Project	R. Persinger (RP)	04/22/07	04/22/07
10. Comment Submittal Approval:			11. Agreement with indicated comment disposition(s)		12.	
_____ Organization Manager (Optional)			_____ Reviewer/Point of Contact		_____ Reviewer/Point of Contact	
_____ Date			_____ Author/Originator		_____ Date	
_____ Date			_____ Author/Originator		_____ Author/Originator	

13. Item	14. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	15. Hold Point	16. Disposition (Provide justification if NOT accepted.)	17. Status
1.	Section 1.0, penultimate sentence (editorial comment)– This sentence indicates that the safety basis for the facility is being "reconstituted". A safety basis is being prepared to be consistent with the facilities extended mission. A better description would be "upgraded".		Accept. Editorial improvement made as indicated.	
2.	Section 2, bottom of page 5 – Performance criteria is not being proposed at this time. There would be an added benefit to providing preliminary performance criteria to aid in determining modifications for the extended mission of the facility.		The Scoping Hazard Analysis (HA) is a qualitative assessment. Performance criteria will be developed as need during the formal safety basis development activity. No new SSCs were identified in this report (with the exception of a couple of passive design features) and no significant shift in control strategy was identified.	
3.	Section 3.1, page 8, Assumptions– Provide radioactive material forms for the MAR.		Accept. Forms for specific research activities vary widely, everything from volatile solutions (very small quantities) to ceramic solids and metals. The materials assumed in the scoping HA were the highly dispersible forms (powders and liquids), and is added to the assumption statements presented in Section 3.1.	
4.	Section 3.1, page 8. Assumption # 1 – Define "bench scale quantities".		Accept. Bench scale quantities would typically be micro-grams or milligram, up to 1 or 2 grams (e.g. if in a glove box) Pu-239 dose equivalent (Pu-239E). This clarification is added to assumption # 1.	

13. Item	14. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	15. Hold Point	16. Disposition (Provide justification if NOT accepted.)	17. Status
5.	Section 3.1, page 8, Assumption #2 – This assumption states that the MAR does not exceed current radioactive material inventory limits (i.e. 100 curies per room, 300 curies per area and 1500 curies for the facility). Need to specify curies of what type material.		Accept. Curies of material type is now clarified in the statement of this assumption. (Pu-239E or H-3E).	
6.	Section 3.1, page 8, Assumptions – Current facility radioactive material inventory controls also specifies a limit in H-3E terms. Discuss if the scoping hazards analysis considers this form of radioactive material and is included in consequence estimates.		Accept. Curies of material type is now clarified in the statement of this assumption. (Pu-239E or H-3E).	
7.	Section 3.2, second paragraph – This paragraph indicates that legacy waste tanks will be removed. Provide schedule for removal of these tanks. Specify if this is an Environmental Management Project or an Office of Science Project.		Accept. This is a scheduled EM activity. This clarification is made in the 2 nd paragraph of Section 3.2 and the list of assumptions at the end of Section 3.2.	
8.	Section 3.2, page 9, last paragraph – This paragraph makes an assumption that the structure and infrastructure would receive that appropriate level of inspection and maintenance so they would be able to perform their functions during the extended mission. State how the facility will ensure that this assumption remains valid.		Accept. This was a best judgment analysis assumption that was made during the Scoping Hazard Analysis. For safety systems this is now supported by conclusions of the Phase I Safety System Assessment, ATS21946. 325 <i>Building Safety System Assessment</i> . This reference is now cited.	
9.	Section 4.1 – State the distance to the site boundary for estimating consequences to the Maximally Exposed Off Site Individual (MOI).		Accept. The distance to the site boundary for the MOI was 570 m, the same distance used in the current DSA accident analysis. Reference to this distance was added to the cited discussion.	
10.	Section 4.1, first paragraph, fourth line. This line states that frequency estimates were made without crediting normal nuclear safety controls. State if this statement applies to consequence estimates also.		Accept. The statement about not crediting nuclear safety controls for consequence estimates is already made in the next paragraph (Section 4.1 7 th paragraph), so no improvement needed.	
11.	Section 4.1- Methodology for estimating consequences from releases needs to be described so that there can be an understanding of how the consequences were estimated.		Accept. The current DSA accident analysis provides the benchmark for the consequence estimates. No new accident analysis was performed for this limited scoping activity. This is considered adequate as no new accident types are identified in the hazard analysis for the extended mission. This discussion is enhanced in Section 4.1	
12.	Section 4.1 – Need to provide information on release paths (ground level, elevated) used in estimating consequences.		Accept. The current DSA accident analysis provides the benchmark for the consequence estimates, and conservatively assumes ground level releases for all accidents. No new accident analysis was performed for this limited scoping activity. This is considered adequate as no new accident types are identified in the hazard analysis for the extended mission. This discussion is enhanced in Section 4.1	
13.	Table 5-1, Safety Significant SSCs and Design Features for Safety (DFs) – Provide the NPH performance category for these SSCs. State if the DFs have been included in the NPH re-analysis or not.		Accept. The RPL facility is classified as PC-2. No active safety systems are assumed to fully functional after a design basis seismic event. The Fire Protection System cannot be made PC-3 because the water supply is not PC-3. The risk to the public is from an EU seismic event that propagates into a facility wide fire is a currently accepted risk. This information will be added to Section 5.2, Scoping Control Allocation Results.	
14.	Appendix A, item I, second "dash" – In my opinion, for any consequence equal to or greater		Agree but no action needed. It stipulates in our proposed criteria that	

13. Item	14. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	15. Hold Point	16. Disposition (Provide justification if NOT accepted.)	17. Status
	than 15 rem, it would be extremely difficult to not assign a safety class SSC for prevention or mitigation.		for dose consequences above 5 rem for the MOI, Safety Class SSCs should be considered. And so we agree that for any consequence equal to or greater than 15 rem, it would be extremely difficult to not assign a safety class SSC for prevention or mitigation. All MOI consequences evaluated in the DSA are less than 5 rem without mitigation.	
15.	Appendix A, item 3 – DFs are either safety class SSCs or safety-significant SSCs, depending on the accident scenario consequences they are preventing/mitigating. Is that the intent by this item?		Accepted. The cited DRs will be cited as SS DR. In any case the intention is that the DRs will be identified in the TSR and there will be an appropriate administrative control applied (CM).	
16.	Table Bs . Material at Risk Column" – Numerous descriptions for Material at Risk (MAR) are provided in this column for the various scenarios. These descriptions (Stored Rad Material, Waste in Storage Tanks, Facility contamination, glovebox inventory, fume hood inventory, fume hood HEPA filter inventory, fume hood vent contamination, liquid waste inventory, inventory in several adjacent rooms, HLRC HC inventory, mini HC inventory) have not been quantified. Need to have the MAR for these terms defined so that an understanding of how the consequence estimates were derived can be made.		Accepted. Forms for specific research activities vary widely, everything from volatile solutions (very small quantities) to ceramic solids and metals. The materials assumed in the scoping HA were the highly dispersible forms (powders and liquids), and is added to the assumption statements presented in Section 3.1. Also added is a definition of bench scale quantities: micro-grams or milligram, up to to 1 or 2 grams (e.g. if in a glove box) Pu-239 E. Room-wide events are assumed to involve the Room TSR limit quantities, area wide events are assumed to involve Area TSR limit quantities, and Facility-wide events are assumed to involve the Facility TSR limit quantities.	
17.	Table B-1, scenarios 4.1bb and 4.1cc – The description of these scenarios states that a release occurs in Building 340. If Building 340 is included in the DSA for 325, this should be discussed in Section 3 of this scoping hazards analysis.		Not accepted. This is a facility interfacing hazard that will be retained for informational purposes.	
18.	Table B-1, scenarios 4.3d, 4.3f, 4.3g, 4.3h, 4.3la and 4.3lb – The material at risk column for these scenarios indicates "none". Explain how there is a consequence to MOI, co-located workers and facility workers when there is no material at risk.		Accept. The MAR assumed in these event postulations is in each case container inventory (editorial mistake). Correction made in Table B.1 and C.1.	
19.	Table C-1, scenarios 4.1jj and 4.1kk – Description of event is that criticality occurs in hot cell. However, proposed control is glove box confinement. Confirm that the proposed control is correct.		Accept. The proposed control should be for a hot cell confinement (editorial mistake). Correction made in Table C.1.	
20.	Table C-3, scenarios 6.1e and 6.1f – The consequences of these two scenarios to the MOI is "Medium" and to the co-located worker is "high", however there are no SSCs listed as SS for prevention or mitigation. Provide basis for not taking credit for a SSC given the estimated consequences.		Accept. This level of risk is from an EU seismic event is currently accepted and can not be readily prevented or mitigated by designating an SSC. This discussion will be added to Section 5.2 Scoping Control Allocation Results.	
21.	Provide NCSEs/NCSAs for the Building 325 operations.		These documents can be provided electronically on demand. Criticality Safety Evaluation is not within the scope of this assessment activity. Criticality safety is currently addressed using a Nuclear Criticality Safety Program Administrative Control. Any improvements to thus control are likely to be administrative and not related to safety upgrades.	

Attachment E

DOE Review Comments for the Safety System Assessments

REVIEW COMMENT RECORD (RCR)

REVIEW COMMENT RECORD (RCR)			1. Date 4/4/07		2. Review No,	
			3. Project No. PSF-07-SC-05		4. Page ¹ of ²	
5. Document Number(s)/Title(s) 325 Building Safety System Assessment Report (Doc # CRL-INC-07-0007)			6. Program/Project/Building Number SC I PSF Project / Building 325		7. Reviewer Dave Greer	
			8. Organization/Group AMESH		9. Location/Phone Oak Ridge (865) 576-0858	
10. Comment Submittal Approval:		11. Agreement with indicated comment disposition(s)			12.	
_____ Organization Manager (Optional)		_____ Reviewer/Point of Contact			_____ Reviewer/Point of Contact	
_____ Date		_____ Author/Originator			_____ Date	
_____ Author/Originator		_____ Author/Originator			_____ Author/Originator	

13. Item	14. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	15. Hold Point	16. Disposition (Provide justification if NOT accepted.)
1.	<u>Fire Water Supply</u> The water supply for the fire protection suppression systems should be reliable. Ideally, this system would also be redundant. The conclusion of this assessment admits that the infrastructure issues represent the greatest uncertainty for long-term operations. A review of the water supply and recommendations for improvement should be addressed by the in-progress study that is discussed on page 53.		Options for providing a reliable water supply with redundancy for continued occupancy of facilities in the 300-Area are being evaluated and negotiated with DOE EM and Washington Closure Hanford, with PNNL having developed and submitted functional design criteria for the extended mission facilities in the 300 area. PNNL Fire Protection Engineering is directly involved in this process.
2.	<u>Fire Department Capabilities</u> The adequacy of fire department resources needs to be evaluated. Availability of sufficient resources and the ability to respond within appropriate time requirements needs to be determined. Again, this issue should be addressed by the in-progress study that is discussed on page 53.		The Hanford Fire Department (HFD) will remain in the 300 area and provide support consistent with the current response capability for the foreseeable future. This is in part to support the ongoing DOE EM cleanup activity that will extend beyond the PSF project life (beyond 2011). The current Hanford site contractor is responsible for emergency response to fires on the Hanford Site including the 300-Area. HFD maintains a 300-Area station and the department capabilities are addressed in the Hanford Site Needs Assessment. At this time there are no plans by HFD to reduce the level of protection for the 300-Area. The need to maintain, upgrade or replace the 300-Area station to serve the extended use of the 300-Area will be evaluated as part of the long-term needs for maintaining utilities and services in the 300-Area in support of the ongoing EM activities, as well as the extended mission activities in the DOE-SC facilities.

13. Item	14. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	15. Hold Point	16. Disposition (Provide justification if NOT accepted.)	17. Status
3.	<u>Building Hazard Occupancy</u> An evaluation of new equipment and processes will need to be performed to determine whether the appropriate hazard classification will change. Currently, the building is classified as Ordinary Hazard Group II.		Although Riser I was calculated to Ordinary Hazard II per NFPA 13 at the time it was modified (1994), the facility and its operations are more appropriately defined as Ordinary Hazard I per NFPA 13 and 45. Any modifications to the facility to accommodate new work are reviewed by PNNL fire protection engineers. No new or proposed activities associated with the Building 325 life extension have identified a need to change this status.	
4.	<u>Pipe Schedule</u> The report states that a portion of the sprinkler system was designed with a hydraulic calculation. This calculation is based on an Ordinary Type II hazard classification. Are the pipe schedule portions of the system also designed to Ordinary Hazard?		Yes, the pipe schedule systems are designed and installed to Ordinary Hazard pipe schedule.	
5.	<u>Suppression System Testing</u> Section 3.1.1 (page 6) – The requirement "System testing is adequate to ensure operability", is not met. There a discussion on suppression system <i>inspection</i> , but not testing.		"Operability" for the Fire Alarm and Suppression System (FASS) is defined by the LCOs associated with the system. These are the focus of this criterion. Review Approach item #5 (p 48) addresses the balance of activities supporting FASS functionality, including flow tests, detector testing, and other tests that are regularly performed as required by the fire protection program. The write-up in section 3.1.1 has been supplemented to describe and refer to this additional information.	
6.	<u>Fire Alarm Testing</u> Section 3.1.4 (page 7) – Subsection A states, "There were no instances found or reported that the FASS failed to meet its test acceptance criteria or failed on demand during the last three years." However, Appendix B notes that annual logs from PM-44270 (which specifies acceptance criteria for the FACP) were only reviewed from 2004 and 2006 (page 39).		The sampled information for this PM was from 2004 and 2006. The additional test for 2005 (and finalized in 2006) was obtained from the facility records and showed no deficiencies. The write-up on p. 39 has been supplemented with this additional information.	

REVIEW COMMENT RECORD (RCR)

1. Date 4/13/2007

2. Review No.

3. project No. PSF-07-SC-05

4. Page 1

5. Document Number(s)/Title(s)
325 Building Safety System Assessment ATS 219466. Program/Project/Building Number
325 Building7. Reviewer
Robert McBroom8. Organization/Group
**Safety & Health
Team
Safety and Health
Division, SE-33**9. Location/Phone
**Oak Ridge
Operations 865-576-
9437**

10. Comment Submittal Approval:

11. Agreement with indicated comment disposition(s)

12.

Organization Manager (Optional)

Reviewer/Point of Contact

Reviewer/Point of Contact

Date

Date

Author/Originator

Author/Originator

13. Item	14. Comment(s)/Discrepancy(s) (Provide technical Justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	15. Hold Point	16. Disposition (Provide justification if NOT accepted.)	17. Status
1	Extended life for the Criticality Alarm System is highly dependent on the support infrastructure. The systems are already quite old and there are no longer any US vendors. The declaration in section 3.5 Programmatic Areas from ADM-027 "Evaluation of RPL Equipment Category Replacement Components" that commercial off the shelf components are available that can be qualified as functional SSC equivalents is suspect.		<p>The criticality alarm system (CAS) is a simple robust system: The CAS system is neutron-based vs. gamma-based. There are no solid-state components that are vulnerable to failure in a pulsed radiation environment.</p> <ul style="list-style-type: none"> Detector heads and comparator panel use simple analog circuit components (e.g., transistors, resistors) and electrical relays. <p>There is no history of failure, no false alarms.</p> <p>Annually each detector head is refurbished, and functionally tested. System functional testing is performed Quarterly which includes each detector.</p> <p>Spare parts are on hand and more are being obtained as D&D of other facilities with similar systems occurs; there are no critical components that are unavailable.</p> <p>It is not accurate to assert there are no US vendors; the ionization chambers are manufactured locally.</p> <p>If it should ever become necessary, the entire system could be replaced with a newer system or a portable system. Based on the continued availability of spare parts, this need is not anticipated.</p>	

Attachment F

DOE Review Comments for the Natural Phenomena Hazards Assessment Update

REVIEW COMMENT RECORD (RCR)

REVIEW COMMENT RECORD (RCR)				1. Date 1/16/07	2. Review No. CRL-ISM-02
				3. Project No. 07-SC-05	4. Page 1 of 59
5. Document Number(s)/Title(s) CRL-INC-07-0014 "Seismic and Wind Evaluation of Building 325 at Pacific Northwest National Laboratory"		6. Program/Project/Building Number PNNL CRL Project		7. Reviewer R. Persinger (RP) Les Ginn	
				8. Organization/Group ORO-AMS ORO-AMS	
				9. Location/Phone 865-241-6588	
10. Comment Submittal Approval: _____ Organization Manager (Optional)		11. Agreement with indicated comment disposition(s) _____ Date _____ Reviewer/Point of Contract _____ Author/Originator		12. _____ Date _____ Reviewer/Point of Contact _____ Author/Originator	
13. Item	14. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	15. Hold Point	16. Disposition (Provide justification if NOT accepted.)		17. Status
-01	There are no comments on the document. However, Section 9.1.4 contains various assumptions that are to be verified. Please provide PNNL's plan/process for verifying these assumptions and how the assumptions will be tracked to closure.		The NPH update included ten "assumptions to be verified" that the subcontractor utilized in support of the calculation. The assumptions (each utilized in a conservative fashion in the calculation) have been entered into the PNNL Assessment Tracking System (ATS) for follow up. Assessment #20762 has each of the assumptions as a condition to be addressed as facility resources are allocated to close the item. DOE has access to this ATS item, and can track progress towards validation of the assumptions. Please note that in some cases actual "destructive" examination is needing to be performed (such as excavating concrete around the first floor diaphragm) to validate an assumption. A formal facility / craft work plan (service request) needs to be processed prior to the work being executed, which directly impacts the period of time to complete the work scope. Each item is in a "draft" status until the final work scope document can be finalized, but the overall assessment has a FY07 planned completion date.		
-02					

Attachment G

DOE Review Comments for the 2004-2 Ventilation System Evaluation

REVIEW COMMENT RECORD (RCR)	1. Date April 30,2007	2. Review No. 043007-1
	3. Project No. 2004-2 Review of REVS	4. Page 1

5. Document Number(s)/Title(s) <i>SLP 0024 DOE-SC TYPD 5/16/07</i> CRL-INC-07-2004 (no date)	6. Program/Project/ Building Number B-325/PNNL	7. Reviewer C. L. Sohn	8. Organization/Group SC/PNNL	9. Location/Phone ETB/1241
---	--	---------------------------	----------------------------------	-------------------------------

17. Comment Submittal Approval:

10. Agreement with indicated comment disposition(s)

11. CLOSED

Organization Manager (Optional)
Contact

Reviewer/Point of Contact
Date

Reviewer/Point of
Date

Author/Originator

Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1	General: The approved safety basis for B-325 (page 8.3) indicates that compressed air and electrical power SSCs support the functionality of REVS. While there is discussion concerning the electrical system, there is no discussion on the compressed air system. It is recommended that both the applicable portions of the electrical system and compressed air system be evaluated to the evaluation criteria in Appendix B. This would include materials of construction, system status/alarms, etc. (CLS)	X	Accept. From our reading of the evaluation guidance and the pilot studies there doesn't seem to an expectation that the support systems be separately assessed. However, they will be added to Appendix B discussions in the context of assessing the ventilation system to the extent a specific performance criteria is applicable. Applicable criteria include materials of construction, system status/alarms, calibration and integrated performance testing.	

REVIEW COMMENT RECORD (RCR)	1. Date April 30,2007	2. Review No. 043007-1
	3. Project No. 2004-2 Review of REVS	4. Page 2

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
2	Page 14, Appendix A, Data Collection Table: The "Mitigated" columns show now reduction of consequences relative to the credited controls. Is this because it was not evaluated, only looked at reduction relative to REVS or some other reason? Suggest an addition of a footnote to explain the lack of difference (if applicable)(CLS)	X	Accept. A footnote will be added. No credit is taken for mitigation of the dose consequence, by REVS or any other system, for any of the accidents cited. Fire Protection/Suppression is credited for reducing the frequency of fire events. There is credit taken for material inventory limit LCOs that protect assumptions about the maximum amount of material that might be involved.	
3	Page 16, Appendix B, Pressure differential criterion: Please describe the pressure differential instrumentation installed between the confinement zones. (CLS)	X	Accept. The differential instrumentation between the confinement zones will be described.	
4	Page 17, Appendix B, Materials of construction, para 2: If accurate, please add a statement that the stack and main plenum are designed for normal operating conditions to survive outside weather conditions. What are the exhaust fans constructed of—are they also 16 and 18 gage stainless steel? (CLS)	X	Accept. The design parameters of stack and main plenum design with regard to environmental conditions will be described, including the material of construction of the fan and stack	
5	Page 17, Appendix B, Exhaust system should withstand: Are the applicable portions of the support systems (electrical and compressed air) designed to operate in the anticipated seismic event? (example of general concern (I)) (CLS)	X	Accept. Will take out reference to the ability of REVS to operate in an anticipated seismic event.	
6	Page 26, Appendix B, Administrative controls: Suggest adding words about the work control process in 325 since this process helps prevent and preserve the confinement barrier. (CLS)	No	Accept. A more complete discussion will be provided that includes reference to SMPs, the USQ process and Standards Based Management System (SBMS).	

REVIEW COMMENT RECORD (RCR)			1. Date 04/23/07		CRL-INC-07-0037 2. Review No. HAR-01	
			3. Project No.		4. Pages 7	
5. Document Number(s)/Title(s) Hanford Site, Building 325 DNFSB Recommendation 2004-2 Ventilation System Evaluation CRL-INC-07-0024 Revision 0			6. Program/Project/Building Number PNNL CRL Project		7. Reviewer R. Persinger (RP) Scott Foster (SF)	
			8. Organization/Group ORO-AMS ORO-AMESH		9. Location/Phone 509-372-4546 509-372-4900 509-372-4508 509-372-4284 509-372-4750 509-372-4014 865-211-6588 509-372-4931 301-903-8388 509-372-4007 509-372-3972	
10. Comment Submittal Approval: <div style="border-top: 1px solid black; width: 100%; text-align: center; margin-top: 20px;"> Organization Manager (Optional) </div>		11. Agreement with indicated comment disposition(s) <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;"> <div style="border-top: 1px solid black; width: 100%;"></div> Reviewer/Point of Contract </div> <div style="text-align: center;"> <div style="border-top: 1px solid black; width: 100%;"></div> Date </div> <div style="text-align: center;"> <div style="border-top: 1px solid black; width: 100%;"></div> Author/Originator </div> </div>		12. <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;"> <div style="border-top: 1px solid black; width: 100%;"></div> Reviewer/Point of Contact </div> <div style="text-align: center;"> <div style="border-top: 1px solid black; width: 100%;"></div> Date </div> <div style="text-align: center;"> <div style="border-top: 1px solid black; width: 100%;"></div> Author/Originator </div> </div>		

13. Item	14. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	15. Hold Point	16. Disposition (Provide justification if NOT accepted.)	17. Status
1.	(RP) Section 1.2.1, page 6, first paragraph – This paragraph discusses when HEPA filters are replaced. However, it makes no mention of an age requirement for replacement. Should this not be included in this section?		Accept. Will clarify the current situation. (A PM procedure being developed to evaluate service life)	
2.	(RP) Section 1.2.1, page 6. second paragraph – This paragraph discusses protection that the REVS provides to on-site workers and the public. Does not the REVS provide some protection to the facility workers also?		The DSA is consistent with the control selection guidance provided by DOE-RL. Under this guidance, facility worker safety features provided by safety management programs would not be elevated to discrete TSR controls. There are no worker safety performance requirements for the RPL ventilation system that are not provided by the radiological protection SMP. The purpose and function of the REVS as described in the DSA is only relative to onsite workers and the public. The facility worker safety functions of the ventilation system provided under the radiological protection SMP is outside the purpose and scope of this assessment	

13. Item	14. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	15. Hold Point	16.	17. Status
3.	(RP) Section 1.3 – This paragraph states that the REVS will not be credited as safety significant in the DSA. Does not the REVS provide a significant D-I-D function to on-site and facility workers such that it should be considered as a SS-SSC? The door should not be closed on the classification of the REVS system in this scoping document. The fire detection and suppression system plus the REVS being a SS because of significant DID, plus the DFs to be designated provides an excellent argument for a robust safety basis. The REVS is currently classified as a SS SSC so this does not actually result in a change.		As currently written, the DSA identifies the REVS as Safety Significant because it potentially provides an additional layer of protection to a small set of potential accidents, and therefore is considered D-I-D. Under the current safety equipment classification structure used at PNNL, equipment formally identified as D-I-D in the DSA is considered part of the Safety Significant category based on the 10CFR830 definition of Safety Significant. In the Scoping HA the REVS was determined to be D-I-D because it can only provide potential mitigation of a limited subset of analyzed accidents, and the unmitigated consequences of those accidents do not require mitigation. As part of the upgraded DSA development activity, consideration will be given to establishing D-I-D as a separate equipment classification category below Safety Significant. Under that classification structure the REVS would be classified as D-I-D only.	
4.	(RP) Section 2.2, first paragraph, first sentence – This sentence states that there are no SS or SC functions identified in the current DSA associated with the 325 Building ventilation. Is not the REVS classified as an SS-SSC in the current DSA?		See the response to question 3.	
5.	(RP) Section 2.2, first paragraph, penultimate sentence – This sentence states that the 2007 annual update of the DSA will reduce the facility limit for tritium. When will this revision be submitted?		May 1, 2007	
6.	(RP) Section 3.0, last paragraph – Would it not be more appropriate to state that the ventilation system is not credited in the accident analysis? It is credited as a SS-SSC.		See the response to question 3.	
7.	(RP) Appendix A – Table is unclear. Unmitigated consequences are presented. Mitigated consequences are then provided along with the REVS functions. However, the unmitigated and mitigated consequences are the same. Surely if the REVS system was functioning, it would substantially reduce the mitigated consequences. Explain this table.		Accept. A footnote will be added. No credit is taken for mitigation of the dose consequence, by REVS or any other system, for any of the accidents cited. Fire Protection/Suppression is credited for reducing the frequency of fire events. There is credit taken for material inventory limit LCOs that protect assumptions about the maximum amount of material that might be involved.	
8.	(RP) DID Performance Criteria, Maintenance Criteria – Need to clarify what is meant by the Building 325 meets the ten year maximum life stipulation.		Accept. Will clarify the current situation. (A PM procedure being developed to evaluate service life)	

CRL-INC-07-0037

9.	(SF) Reference the document that establishes the allowable exposure limits as to ionizing radiation and chemical concentration.	Not a hold point	The Radiological Protection SMP mandates monitoring and alarm of activities that have the potential to release material that could result in ≥ 100 mrem (0.1 rem) in an acute exposure.	
10.	(SF) Revise the REVS schematic to show the logic as to fan operation and the parameters monitored as to its required performance. Include information as to alarm "set points" as to radiation exposure rates and chemical concentrations	Not a hold point	These are defined in the System design description.	
11.	(SF) Consider providing some means by which personnel will be able to recognize an impaired condition of the REVS; they may need to evacuate in a timely manner if there is a release and or the REVS is incapable of providing the necessary confinement.		<p>There are no DSA specified criteria for these actions relative to the REVS. The 2004-2 assessment is limited to meeting CVS requirements as specified in the DSA.</p> <p>The Radiological Protection SMP mandates monitoring and alarm of activities that have the potential to release material that could result in ≥ 100 mrem (0.1 rem) in an acute exposure.</p>	

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
CRL-MC-07-0024 (no date)	B-325/PNNL	J. L. Carlson	SC/PNSO	ETB/1350

17. Comment Submittal Approval:

10. Agreement with indicated comment disposition(s)

11. CLOSED

 Organization Manager (Optional)
 Contact

 Reviewer/Point of Contact
 Date

 Reviewer/Point of
 Date

 Author/Originator

 Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1	Pg. 10, 3.0 Evaluation, second paragraph: Statement made that ventilation system was walked down by a facility evaluation team. This statement should be revised to better describe what was looked at and what was not looked at. For instance, ventilation components beneath both sets of hotcells were not looked at, ventilation components related to the vaults were not looked at, etc.	X	Accept. We clarify what areas the walk-down included and id not include. (Accessible areas, the basement, filter building, the annexes and some lab rooms. It did not include entering radiation areas.)	
2	Pg. 15, Appendix B. General: Explanations would be more complete and in better keeping with the tasking letter if offered as "REVS is not credited in current DSA, and is not anticipated to be credited in future DSAs based on the Scoping Hazards Analysis..." The Scoping Hazards Analysis is mentioned in section 1.3, but the report would benefit from more broadly relaying Scoping Hazards Analysis conclusions throughout question responses.	No	Accept. Will expand discussion to emphasize that based on the Scoping HA and looking ahead that REVS will not be designated an SS system when the DSA is updated.	
3	Pg. 15, Appendix B, General: At the review in-briefing discussion occurred about how to answer the SS Performance Criteria questions. The discussion concluded that one part of each answer would be based on REVS not currently being credited in the current DSA. and that a second part of each response would evaluate what it would take to get REVS "creditable" as a SS system. This second part was discussed to also include development of a cost estimate for the identified improvement "options". Such information was intended to directly contribute to the upcoming nuclear safety risk/acceptance discussions with SC-3 and validate the current scoping of life extension upgrades. This second part of the SS Performance Criteria responses was not included in the report as planned. It is not clear why this information was not included.	X	This report will continue to show that there are no gaps to expected performance criteria for the ventilation system. The Risk Assessment report, however, does provide options and cost benefit information.	

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
4	Pg. 26, Appendix B, SS Performance Criteria Range Fire/Dust: Response includes reference to GP-487, <i>General Expectation and Operational Guide for PNNL Grounds Maintenance</i> . This document does not appear to apply to an appropriate response to this question. The procedure covers grounds maintenance work on Battelle property and at EMSL. not 300 Area needs.	No	GP-487 applies to RPL as well as all PNNL facilities and helps minimize external hazards. (Will check with RPL staff to ensure that this is true.)	

Attachment H

DOE Review Comments for the 325 Building Extended-Mission Risk Assessment

REVIEW COMMENT RECORD (RCR)				1. Date 04/23/07	2. Review No. HAR-01
				3. Project No.	
5. Document Number(s)/Title(s) 325 Building Extended-Mission Risk Assessment CRL-RPT-ESH-001, Rev. 0	6. Program/Project/Building Number PNNL CRL Project	7. Reviewer R. Persinger (RP)	8. Organization/Group ORO-AMS	4. Pages 7 9. Location/Phone 865-241-6588	
10. Comment Submittal Approval: <div style="border-bottom: 1px solid black; width: 100%; text-align: center; margin-top: 20px;"> Organization Manager (Optional) </div>	11. Agreement with indicated comment disposition(s) <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;"> <div style="border-bottom: 1px solid black; width: 100%;"></div> Reviewer/Point of Contract </div> <div style="text-align: center;"> <div style="border-bottom: 1px solid black; width: 100%;"></div> Date </div> <div style="text-align: center;"> <div style="border-bottom: 1px solid black; width: 100%;"></div> Author/Originator </div> </div>	12. <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;"> <div style="border-bottom: 1px solid black; width: 100%;"></div> Reviewer/Point of Contact </div> <div style="text-align: center;"> <div style="border-bottom: 1px solid black; width: 100%;"></div> Date </div> <div style="text-align: center;"> <div style="border-bottom: 1px solid black; width: 100%;"></div> Author/Originator </div> </div>			
13. Item	14. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	15. Hold Point	16. Disposition (Provide justification if NOT accepted.)	17. Status	
1.	(RP) Section 4.2, second bullet. last sentence – This sentence states that system maintenance activities and upgrades normally performed within existing preventive maintenance programs for the facility were not included in identified upgrades. This included upgrades to meet code requirements. Why were upgrades to meet code requirements not included in options that DOE may want to consider?		Addressed by rewrite.		
2.	(RP) Section 4.3, last paragraph – I believe that a clarification should be made that the determination that there is no major mods is based on the existing DSA.		Addressed by rewrite.		
3.	(RP) Appendix A, Section A.1, page A-2, last paragraph – This paragraph states that the current 325 Building DSA addresses hot cells and gloveboxes through the Radiation Protection Program and its associated TSR Administrative Control. Under the upgraded safety basis, these are anticipated to be re-designated as discrete safety significant Design Features. This re-designation from features within a programmatic Administrative Control to discrete design features is an administrative reclassification that does not reflect a change in the actual safety function or performance required for these passive barriers by the scoping hazard analysis or the 325 Building DSA. Table A.3 states that the safety function of the hot cells and gloveboxes is to reduce consequences to the facility worker, from spills, fires or explosions. Explain how the Radiation Protection Program Admin. Control performs/ensures these safety functions. Explain why the use of an Admin Control Program is as good as an engineered safety feature in light of DOE-STD-3009, (Section 3.3.2.3.3),		Addressed by rewrite.		

13. Item	14. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	15. Hold Point	16. Disposition (Provide justification if NOT accepted.)	17. Status
	DOE G 423.1-1 (Section 4.10.7) and other documents state that admin controls are not as preferred as engineered design features due to the inherent uncertainty of human performance and their generally lower reliability compared with engineered controls.			
4.	(RP) Appendix A, last paragraph – This paragraph indicates that the revisions will not be considered as a SS SSC. PNNL should seriously consider maintaining the revisions as a SS SSC, which along with the fire suppression and detection and the DF would make a very robust safety basis for the scope of work in the facility.		Addressed by rewrite.	
5.	(RP) Table A-4, Criterion 5 - Comment number 3 applies to the first paragraph of the discussion section.		Addressed by rewrite.	

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
325 Building Extended-Mission Risk Assessment (Draft) dated April 20, 2007 (CRL-RPT-ESH-001)	B-325 Upgrades	C. L. Sohn (CLS)	SC/PNNL	ETB/Room 1241

17. Comment Submittal Approval:

10. Agreement with indicated comment disposition(s)

11. CLOSED

_____	_____	_____
Organization Manager (Optional)	Reviewer/Point of Contact	Reviewer/Point of
Contact	Date	Date
_____	_____	_____
	Author/Originator	Author/Originator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1	Page ii, para 3-4: Typos — recommend removing "so were", "so is", change 1198 to 1189 (CLS)	No	Addressed by rewrite.	
2	Page ii, para 5 and page 2, section 2.0: The purpose of this document is to identify risks to the approval authority associated with 10 CFR 830 subpart B—very few of the project risks meet this criteria. Two basic components of the risk require buy-in by SC-3: 1) operating under the existing safety basis (designed for short-term) until a long-term safety basis is implemented and 2) the operational risks associated with the proposed upgrades/options. While the project risks provide some of this information, the safety basis timing and operational risks are what we are trying to justify as being acceptable to the approval authority. (CLS)	Yes	Addressed by rewrite.	
3	Page 8, para 2, last sentence: DOE is specifically requesting proposed modifications above and beyond what PNNL has identified. An example would be expansion of the CAS — although there is no program need at this time, the additional coverage provides future flexibility. Suggest rephrasing this sentence to ensure that some options were proposed.	Yes	Addressed by rewrite.	
3	Page 9, section 4.3. para 1 and Appendix A, Page A-I, para 1: In addition to the 10 CFR 830 definition of a major modification, DOE G 424.1-1A, section B.14.6 also provides additional discussion on major modification — specifically the imposition of nuclear safety design requirements of DOE Order 420.1 B and demonstration of how	No	Addressed by rewrite.	

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16 Status
	they will be met. The changes that PNNL describes for their proposed modifications do not significantly invoke utilization of the design requirements—making the argument stronger. Suggest PNNL consider adding this to strengthen the argument. (CLS)			
4	Page 9, section 4.3. para 2 and Page A-3, Section A.2: Two new engineered design features were added as a result of the hazards analysis scoping study which is not quite consistent with the statement that there is "no change to a TSR required by accident analysis—need to include hazard analysis as well. While PNNL indicates that these two new Engineered Design Features (EDFs) were covered under the existing safety management programs, the promotion to an EDFs (SS level) carries with it increased rigor and oversight (CLS)	Yes	Addressed by rewrite.	
5	Page 14, para 1: Change latter to later	No	Addressed by rewrite.	
6	Page A-2, section A.1, para 5. The current B-325 TSRs are not explicit in calling out the hotcells or gloveboxes but it is stated are considered under the Radiation protection program. However the DSA section on the radiological protection program, section 5.2.3. does not specifically mention the hotcells or gloveboxes, but instead references 10 CFR 835—do not agree that this addressed in the existing DSA and TSRs.	Yes	Addressed by rewrite.	
7	Page A-3, section A.2: I recommend striking the first sentence---the second sentence states that there is no change to a TSR required by accident analysis — however there is a change to a TSR required by the hazards analysis. Recommend restating the second sentence to accurately reflect the changes to the TSRs.	Yes	Addressed by rewrite.	
8	Page A-9: Table A.3: This table includes the reference to the design feature of the tank TK-1 vent. There are no engineered design features called out in the existing TSRs. In addition there is no reference to this tank in the TSRs—what is the basis that this control is already covered under the existing TSRs (statement made regarding the addition of 2 new EDFs)? Reviewer recognizes that this control was identified generically in the hazards analysis—but it did not flowdown into the control suite.	Yes	Addressed by rewrite.	
9	Page A-10: The criticality alarm system is a part of the criticality safety management program. A criticality has a severe impact on facility workers. What is the basis that this control can be downgraded to Defense In Depth (DID) versus SS since it is a credible event?	Yes	Addressed by rewrite.	
10	Page A-9: Table A.3: Where are the design features included that address normal operations— not just from the HA? An example would be day-to-day handling of plutonium 239. The downgrade of the ventilation system from SS to DID appears that only abnormal/accident conditions are evaluated. DOE-STD-3009, CN3 includes in the safety significant definition---"or significant radiological or chemical exposure to workers". (CLS)	Yes	Normal operations were addressed per the guidance provided by DOE-RL, which states that 10CFR835 governs protection to the public and workers. The 325 Building DSA specifically relies on the Radiation Protection Program and 10CFR835 for worker protection from radiation hazards during normal operations, including use and performance monitoring of design features and confinement ventilation. Changes will be incorporated in the upgraded DSA and TSRs to meet Office of Science expectations and interpretations for addressing the hazards of normal operations, as well as specific identification of Design Features in the TSRs.	

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
11	Page A-I 1, Question 2: The scoping HA does increase the importance of two systems, now classified as EDFs — this needs to be specifically called out in the responses along with a basis as to why this is not okay — suggest deleting response after first sentence.	Yes	Addressed by rewrite.	
12	Page A-12, Question 3: Disagree that DOE approval is not required for the addition of the two new EDFs — this involves a change to the TSRs, which under 10 CFR 830 requires DOE approval. Suggest deleting in first paragraph response after first paragraph.	Yes	Addressed by rewrite.	
13	Page A-13, Question 5: Suggest deletion of last sentence in first paragraph and replace with a sentence that states upgrading the classification to SS-EDF?	Yes	Addressed by rewrite.	
14	Figure A.1 and A.2: In addition to the public risk profile, please address on-site workers and the facility workers qualitatively (bins) relative to the event set	Yes	Addressed by rewrite.	
15	Page B-2: What is the cost of performing Option 1? What are the advantages and disadvantages of Option 1?	Yes	Addressed by rewrite.	
16	Page C-2, Section C.3: Remove "Maximum"; incomplete sentence prior to this one.	No	Addressed by rewrite.	
17	Page C-5: Why is there a reference to 420.1A instead of 420.1B in the table?	Yes	Addressed by rewrite.	
18	Page C-6: Several engineered design features are listed in Table C-4. Those that were "new" were specifically the glove box structure and the hot cell structure. However, upon inspection of the TSRs, no engineered design features were listed. Where are these items in the existing TSRs to ensure the appropriate level of oversight and control and that the statement of two new is accurate?	Yes	Addressed by rewrite.	
19	Page E-2, third bullet: With the change from DOE-STD-3009 CN1 to CN3, new words were added into the safety significant definition (CN1→CN2) that went beyond prompt dose exclusion of latent impacts to include significant radiological and chemical dose. Since the existing DSA did not derive any safety significant controls (for those risks bins) for the facility worker there is an impact as a result of the change to CN3.	Yes	Addressed by rewrite.	
20	Page E-3, bullet 1: What is the timing for the requirements of DOE Order 420.1B (fire protection) being implemented?	Yes	Addressed by rewrite.	
21	Page G-I: This section does not present the basis for acceptance of risk to DOE on staying with the current safety basis for another 2-4 years.	Yes	Addressed by rewrite.	
22	General: Overall there was little discussion regarding impacts to facility workers which is one of the areas that the existing safety basis could be improved — discussion was heavily slanted to off-site while 10 CFR 830 does not differentiate facility from co-located workers. (CLS)	Yes	Addressed by rewrite.	
23	General: PNNL is reducing the operational risks in B-325 by actions in conjunction	Yes	Addressed by rewrite.	

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
	with the recent reorganization and improvements to the work control process. Another example is the reduction to the tritium inventory proposed in the document. These could be included to demonstrate positive actions being taken from the safety management program perspective and consequence perspectives that improve safety of the facility and reduce risks. (CLS)			

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
CRL-RPT-ESH-001, Rev. 0, draft (May 2, 2007)	B-325/PNNL	J. L. Carlson	SC/PNSO	ETB/1350 372-4750

17. Comment Submittal Approval:

10. Agreement with indicated comment disposition(s)

11. CLOSED

<p>_____</p> <p>_____</p> <p>Organization Manager (Optional) Contact</p> <p>_____</p>	<p>_____</p> <p>Reviewer/Point of Contact</p> <p>_____</p> <p>Date</p> <p>_____</p> <p>Author/Originator</p>	<p>_____</p> <p>Reviewer/Point of</p> <p>_____</p> <p>Date</p> <p>_____</p> <p>Author/Originator</p>
---	--	--

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1	Pg. 2, Section 3, Rad Protection Program bullets: Verify statement that "work involving uncontained dispersible radionuclides with high radiotoxicity is required to be performed in gloveboxes." Work with such nuclides does occur in fume hoods and other enclosures short of being in a glovebox. The statement may just need to include additional detail on the work location decision point.	No	Accepted. Additional clarification provided in report text (page 15, 2 nd bullet).	
2	Pg. 2, Section 3, Discussion of Allowable Inventory reduction: May be beneficial to include statement that inventory of solids was also reviewed for reduction and reasons it was not.	No	Accepted. Suggested statement included in report text (page 19, last 2 sentences in 1 st complete paragraph)	
3	<p>Pg. 27, Section 6, Cost/Benefit: Some ideas for Table 6-1, <i>Alternatives</i> to Proposed 325 Building Modifications:</p> <p>-C-Cell window refurbishment, \$500K, restore full usability cell.</p> <p>-Remediate HLRF rear gallery floor, \$300K-\$500K, reduction in floor/paint management overhead and reduced potential for contamination events.</p> <p>-Improve humidity control capability, cost unknown, provide ability to control facility humidity to assure working conditions within facility.</p>	No	<p>Not Accepted. Reasons are as follows:</p> <ul style="list-style-type: none"> The current scope of the PSF Project addresses the near term and life extension nuclear safety risks of the RPL. The additional scope items identified (which represent a "short list" of possible operational risk reduction opportunities) are to be covered by out-year annual operation maintenance budgets. The Facility and the Project will take another look at what prioritized scope could be added to the Project as risk is reduced on the Project and contingency is freed-up. 	

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct / resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
	<p>-Remove excess equipment from R-Cell, cost unknown, restore full usability of cell.</p> <p>-Upgrade exhaust capacity of HLRF galleries, cost unknown, improvement contamination control functionality.</p> <p>-Replace/update in-cell hoist capabilities, cost unknown. assure functionality of future.</p> <p>-Update ventilation system monitoring, cost unknown, assure ventilation system monitoring functionality.</p>		<p>- PNSO will participate in the review and possible reprioritization of scope that may be added to the Project within current funding constraints. PNSO will also monitor 325 building M&O maintenance budget formulation and execution to confirm that the items not included in the project are being addressed.</p>	
4	(RNW) First paragraph of the Introduction – Suggest re-wording as follows (editorial) – "Due to cost constraints, the PNNL PSF Project was re-scoped as part of Critical Decision-1R in December 2006. To achieve this point, an Options Analysis was performed in October of 2006..."		Accepted. Report text changed to reflect comment (Page 1, 1 st paragraph).	
5	(RNW) Section 2 ("Life Extensions") – Do not address the reduction of facility inventory limits in this section. It is more appropriately (and is adequately) addressed in Section 4. Section two should remain focused on the "examinations" that the Facility was subjected to.		Accepted. All discussion of reduced inventory limits removed from Section 2.	
6	(RNW) Globally ensure that the Project is referred to as "PSF" and not "CRL".		Accepted. Suggested change made throughout the document.	
7	(RNW) Section 2.6, Facility Modification and Upgrade Determination, under the "Results and conclusions" paragraph – clarify when and by whom the "initially identified" predictable investments were made.		Accepted. Text added (Page 9, 1 st paragraph of Results and Conclusions section).	